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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/972,966 | 10/10/2001 | John W. McCorkle | XSI.007 | 6238 |
| 23400 | 7590 | 06/26/2006 | EXAMINER | |
| POSZ LAW GROUP, PLC 12040 SOUTH LAKES DRIVE SUITE 101 RESTON, VA 20191 | | | WANG, TED M | |
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DATE MAILED: 06/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 09/972,966 | Applicant(s) MCCORKLE, JOHN W. | |
| | Examiner Ted M. Wang | Art Unit 2611 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006 amendment.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 is/are allowed.
- 6) ☒ Claim(s) 10-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The affidavit and declaration filed on 06/05/2006 under 37 CFR 1.131 is sufficient to overcome the US 2002/0102987 A1 reference, therefore, the finality of that action is withdrawn. However, the Applicant's amendments, filed on 12/20/2005, with respect to claims 1-24 have been further considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 10-19, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al. (US 6,304,623) in view of Schlang et al. (US 5,890,051) and McEwan (US 5,510,800).

- With regard claims 10 and 11, Richards et al. discloses a mode selection mechanism for UWB transceiver and radar device (column 2 lines 34-39) and a master clock (Fig.7 and 9 element 708) to select different mode (column 12 lines 30-43).

Richards et al. et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching how the clock is changed and how the receiving mode is selected and switched that

(a) a clock signal generator for generating a base clock signal at a base clock frequency; (b) a first divide circuit for dividing the base clock signal by a first integer value M to generate a first clock signal having a first clock frequency equal to the base clock frequency divided by M; (c) a second divide circuit for dividing the base clock signal by a second integer value N to generate a second clock signal having a second clock frequency equal to the base clock frequency divided by N; and (d) a switch for selecting the first clock signal when a first receive mode of operation is selected, and for selecting the second clock signal when a second receive mode of operation is selected.

However, Schlang et al. teaches a dual band mobile phone with a mode selection mechanism, comprising:

(a) a clock signal generator for generating a base clock signal at a base clock frequency (Fig.1 elements 14, 17, and 21, and Fig.19 elements 30);

(b) a first divide circuit (Fig.19 element 41b) for dividing the base clock signal by a first integer value M (divided by 11 or 12) to generate a first clock signal having a first clock frequency equal to the base clock frequency divided by M (Fig.19 element 41b output);

(c) a second divide circuit (Fig.19 element 41a) for dividing the base clock signal by a second integer value N (divided by $M^2=117$) to generate a second

clock signal having a second clock frequency equal to the base clock frequency divided by N (Fig.19 element 41a output); and

(d) a switch (Fig.19 element 41c) for selecting the first clock signal when a first receive mode of operation is selected, and for selecting the second clock signal when a second receive mode of operation is selected (column 21 lines 29-60). Note that, the Schlang's reference does not exactly teach a UWB clock frequency, but it would have been obvious to one of ordinary skill in the art at the time of the invention was made to easily implement Schlang's the clock generating mechanism and selecting/switching mechanism into Richards' multimode receiving unit in order to provide a transceiver which supports full duplex operation in dual band that can accommodate multiple standards within the same handset (column 2 line 66 –column 3 lines 6) so that the coverage area for a mobile phone can be improved.

Richards et al. and Schlang et al. disclose all of the subject matter as described in the above paragraph except for specifically teaching a pulse forming network for generating a modulated pulse stream in response to the second clock signal.

However, McEwan teaches a pulse forming network for generating a modulated pulse stream in response to the second clock signal (Fig.3 element 114 and column 5 lines 34-52).

It is desirable to include a pulse forming network (PFN) for generating a modulated pulse stream in response to the second clock signal. The reason for

this is that the PFN has the capability of providing a pulse of adjustable duration or having adjustable feedback to tailor the source impedance and characteristics of the modulator (or demodulator), thereby improve operating efficiency, stability, and transient response. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the apparatus as taught by McEwan to connect the PFN at the output of divider 41b as disclosed by Richards et al. and Schlang et al. so that the operating efficiency, stability, and transient response can be improved.

- With regard claims 14, 15, and 16, Richards et al. and Schlang et al. and McEwan disclose all of the subject matter as described in the above paragraph except for specifically teaching a signal processor for processing the received signal with the second divided clock signal and the modulated pulse stream.

However, McEwan further teaches that a signal processor (Fig.3 element 115 and column 5 lines 34-52) for processing the received signal (Fig.3 element 111 output and column 5 lines 34-52) with the second divided clock signal (Fig.3 element 113 and column 5 lines 34-52) and the modulated pulse stream (Fig.3 element 114 and column 5 lines 34-52).

It is desirable to have a signal processor for processing the received signal with the second divided clock signal and the modulated pulse stream. The reason for this is that the signal processor (or mixer) can be used in combination with a filtering or amplification circuit to generate a wanted different frequency (IF or baseband) for further processing so that the frequency conversion operation

can be facilitated. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the signal processor (mixer) for processing the received signal with the second divided clock signal and the modulated pulse stream as taught by McEwan into the modified Richards et al. and Schlang et al. and McEwan receiving unit mixer circuit so as to improve the frequency conversion operation.

- With regard claim 18, which is a mean plus function claim related to claim 14, all limitation is contained in claim 14. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 19, which is a mean plus function claim related to claim 15, all limitation is contained in claim 15. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 23, Richards et al. further discloses a narrow band receive mode (column 2 lines 34-39, column 6 lines 38-39, and column 6 lines 60-62, and column 7 lines 3-10). All other limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claims 12, 13, 17, and 24, Richards et al. and Schlang et al. and McEwan disclose all of the subject matter except for teaching of that (1) the base clock frequency is about 4.8 GHz recited in claim 12 and (2) the second integer value N is equal to 2 as recited in claims 13, 17, 21 and 24.

Regarding claims although Richards et al. and Schlang et al. and McEwan have not don't specifically disclose the limitations of (1) and (2) above, such

limitation are merely a matter of design choice and would have been obvious in the system of Richards et al. Schlang et al. teaches that "the reference oscillator crystal will provide cell phone operating in the 2 GHz region (column 8 lines 15-25) and dividers can be used integers 11 or 12 and 117 (Fig.19 elements 41a, 41b, 42a, 42b, and column 21 lines 21-60) for requirement of the designed system. The limitations in the claims do not define a patentably distinct invention over that in Richards et al. and Schlang et al. and McEwan since both the invention as a whole and Richards et al. and Schlang et al. and McEwan are directed to choose different integers for the divider and clock frequency for a typical operation. Therefore, to select different integer for divider and clock's frequency would have been a matter of obvious design choice to one of ordinary skill in the art.

4. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al. (US 6,304,623) and Schlang et al. (US 5,890,051) and McEwan (US 5,510,800) as applied to claims 1 and 14 above, and further in view of Garin et al. (US 5,901,183).

- With regard claims 20 and 22, Richards et al. and Schlang et al. and McEwan disclose all of the subject matter as described in the above paragraph except for specifically teaching an integrator configured to accumulate an output of the mixer.

However, Garin et al. teaches an integrator (Fig.13 element 443) configured to accumulate an output of the mixer (Fig.13 elements 411, 441, and 443, and column 11 lines 4-29).

It is desirable to including an integrator configured to accumulate an output of the mixer in order to maximize the signal to noise ratio (SNR) so that the receiver performance (quality) is improved. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include an integrator configured to accumulate an output of the mixer as taught by Garin et al. into the modified direct conversion circuit 315 as disclosed by Richards et al. and Schlang et al. and McEwan so as to improve the receiver performance (quality).

All other limitation is contained in claims 1 and 14. The explanation of all the limitation is already addressed in the above paragraph.

- With regard claim 21, Richards et al. and Schlang et al. and McEwan disclose all of the subject matter except for teaching of that (1) the second integer value N is equal to 2 as recited in claims 13, 17, 21 and 24.

Although Richards et al. and Schlang et al. and McEwan have not specifically disclose the limitations of (1) above, such limitation are merely a matter of design choice and would have been obvious in the system of Richards et al. Schlang et al. teaches "the dividers can be used integers 11 or 12 and 117 (Fig.19 elements 41a, 41b, 42a, 42b, and column 21 lines 21-60) for requirement of the designed system. The limitations in the claims do not define a patentably

distinct invention over that in Richards et al. and Schlang et al. and McEwan since both the invention as a whole and Richards et al. and Schlang et al. and McEwan are directed to choose different integers for the divider and clock frequency for a typical operation. Therefore, to select different integer for divider and clock's frequency would have been a matter of obvious design choice to one of ordinary skill in the art.

Allowable Subject Matter

5. Claims 1-9 are allowed.
6. The following is an examiner's statement of reasons for allowance.
 - The prior art fails to teach an apparatus of Claims 1 and 9 that specifically comprises the following:
 - The instant application is deemed to be directed to a non-obvious improvement over the admitted prior art of the instant application and the invention patented in Pat. No. US 6,304,623, US 5,890,051, US 5,510,800, and US 5,901,183. The improvement comprises:

With regard claim 1, "wherein the first arranged pattern comprises a first set of bi-phase wavelets and an adjacent second set of bi-phase wavelets, wherein the second arranged pattern comprises a third set of bi-phase wavelets and an adjacent fourth set of bi-phase wavelets, wherein the first set of bi-phase wavelets and the third set of bi-phase wavelets are the same in wave shape and polarity, and wherein the second set of bi-phase wavelets and the fourth set of bi-phase wavelets are the same in wave shape,

but are inverted in polarity." as recited in combination with other limitation as claimed; and

With regard claim 9, "wherein a first portion of the first arranged pattern is substantially the same in shape and is the same in polarity with respect to third portion of the second arranged pattern, and wherein a second portion of the first arranged pattern is substantially the same in shape and inversed in polarity with respect to a fourth portion of the second arranged pattern." as recited in combination with other limitation as claimed.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

8. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Art Unit: 2611

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M. Wang


KEVIN BURD
PRIMARY EXAMINER

Ted M Wang
Examiner
Art Unit 2611